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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,777	02/21/2006	Jurgen Frank	13156-00037-US	9551
23416 7590 02/01/2007 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899			EXAMINER REDDY, KARUNA P	
			ART UNIT	PAPER NUMBER
			1713	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/01/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/568,777

Applicant(s)

FRANK ET AL.

Examiner

Karuna P. Reddy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 14 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 14 and 16-24 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 14, 16 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/21/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 19 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 3. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).
2. Claim 16 is objected to because of the following informality: "... 2-hydorxy-2-sulfinatoactic ..." should read "... 2-hydroxy-2-sulfinatoacetic...". Appropriate correction is required.
3. Claim 7, 9 and 14 are objected to because of the broad and narrow range/limitation in the same claim: The claims recite the broad recitation of "... at most" followed by a narrow limitation "preferably ...". It is not clear which range controls the actual metes and bounds of the claimed subject matter. Please make appropriate correction.

### ***Claim Rejections - 35 USC § 102/103***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 16 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chaudary (EP 019662 A2).

Chaudary discloses a water-in-oil emulsion of a water soluble polymer.

The water soluble polymer is present and preferably dissolved in water phase of the emulsion. The water-in-oil emulsion may be the direct product of an inverse emulsion polymerization process (abstract). The water soluble polymers may be non-ionic, anionic or cationic (page 2, lines 19-20). Suitable non-ionic monomers include acrylamide (page 2, lines 24-25). Suitable anionic monomers include (meth)acrylic acid and their alkali metal and ammonium salts (page 2, lines 27-30). Polymerization can be effected using known redox initiators (page 3, line

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11-12) . There is no mention of addition of a transition metal during inverse emulsion polymerization.

The prior art is silent with respect to avoiding induction period during inverse emulsion polymerization of free radically polymerizable water soluble or swellable monomers.

However, in light of the fact that prior art teaches / discloses essentially the same inverse emulsion polymerization, one of ordinary skill in the art would have a reasonable basis to believe that there would be no induction period during inverse emulsion polymerization of prior art. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

Even if inverse emulsion polymerization of instant claims and prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to avoid induction period during inverse emulsion polymerization because it appears that the references generically embrace the claimed inverse emulsion polymerization and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between inverse emulsion polymerization of claimed invention and prior art give rise to unexpected results.

***Claim Rejections - 35 USC § 103***

8. Claims 1-10, 14, 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudary (EP 0196162 A2) in view of Berghofer et al (US 6,211,400 B1).

Chaudary discloses a water-in-oil emulsion of a water soluble polymer. The water soluble polymer reads on claim 6 and is preferably dissolved in water phase of the emulsion. The water-in-oil emulsion may be the direct product of an inverse emulsion polymerization process (abstract). Such inversion emulsions are preferably prepared by direct emulsion polymerization starting from a solution of water soluble monomer(s). The water soluble monomer(s) are first dissolved in water and this aqueous phase is emulsified in a hydrocarbon or other hydrophobic medium as the continuous phase to form a water-in-oil emulsion of the monomer(s). The water soluble monomer(s) are then polymerized within the dispersed aqueous phase (page 2, lines 6-15). The water soluble polymers may be non-ionic, anionic or cationic and may be lightly crosslinked by the incorporation of di- or poly-functional monomers (page 2, lines 19-22). Suitable non-ionic monomers include acrylamide (page 2, lines 24-25) and reads on claim 3. Suitable anionic monomers include (meth)acrylic acid and their alkali metal and ammonium salts (page 2, lines 27-30) and reads on claims 2-3, 19 and 22-23. The di- or poly-functional monomers (page 2, lines 36) read on the crosslinker of claim 1. Polymerization can be effected using known redox initiators (page 3, lines 11-13) and reads on redox initiator pair of claim 1. There is no mention of addition of a transition metal during inverse emulsion

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polymerization and reads on claims 5 and 22-24. In example 1, which reads on claims 4 and 20; example 3, which reads on claim 21, the method of polymerization was carried out by firstly preparing an aqueous phase containing water soluble monomers. The oil phase contains Witcamide 511, which acts as a water-in-oil emulsifier (page 4, lines 21-38) of claims 4, 8 and 20-21. The aqueous phase was then emulsified in the oil phase to give a stable emulsion. Polymerization was then carried out using a redox catalyst (page 5, lines 1-5). It is sometimes advantageous to include an oil-in-water emulsifier or a mixture of oil-in-water emulsifier (lines 17-20). Furthermore in example 3, the latex included 12% of an oil-in-water emulsifier. Chaudary provides a method for thickening a liquid medium which is at least mainly non-aqueous with a thickener comprising a water-in-oil emulsion of a water soluble polymer, which water soluble polymer is present in the water phase of the water-in-oil emulsion (page 1, lines 22-26) and reads on claims 17-18. Furthermore in example 2 and 3, polymer latex i.e. water-in-oil emulsion polymer was used to thicken unsaturated polyester resin and glycerol respectively.

The prior art of Chaudary differs from instant invention with respect to

- a) 2-hydroxy-2-sulfinatoacetic acid as a reducing agent of the redox initiator of claim 1.
- b) redox initiator and oil-in-water emulsifier are added to water-in-oil emulsion instead of aqueous monomer solution of claims 4 and 20-21.

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c) residual monomer content of claim 7, speck content of claim 9 and gel body content of claim 14.

d) solid composition of claim 10.

With respect to a) however, it is known that 2-hydroxy-2-sulfinatoacetic acid is a good reducing agent as taught by Berghofer. Berghofer et al teach that sulfinic acid is one of the strongest known reducing agents (column 1, lines 5-6). They are preferably used as a cocatalyst in emulsion polymerization together with peroxidic initiators in order to allow the polymerization to be carried out at low temperatures. Therefore, it would have been obvious to one skilled in the art at the time invention was made to use 2-hydroxy-2-sulfinatoacetic acid as a reducing component of the redox couple initiator and realize the polymerization at low temperatures, motivated by expectation of success.

With respect to b), the order of addition of ingredients is merely a matter of choice and is within the skill of the art to adopt such procedure as is found most satisfactory. One would not expect that minor variation in the sequence of contacting reagents would impart substantially different effect specially in light of the specification (paragraph 0066) of instant invention wherein the (co)polymerization is affected after the aqueous phase is emulsified. See *In re Hempel*, 74 USPQ 171-173 (CCPA 1947). See also *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is *prima facie* obvious.)



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With respect to c), in light of the fact that prior art teaches / discloses essentially the same inverse emulsion polymerization and further use of these water-in-oil emulsions for thickening aqueous solutions, one of ordinary skill in the art would have a reasonable basis to believe that the emulsions and the printing pastes would exhibit similar property(ies). Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

With respect to d), in light of the specification of instant invention (paragraph 0083) that methods for removing inert hydrophobic liquid and water after copolymerization are within the scope of a skilled artisan, it would have been obvious to one skilled in the art to remove hydrophobic liquid i.e. oil and water from water-in-oil emulsion and obtain the solid composition comprising oil-in-water emulsifier, water-in-emulsifier and at least one homopolymer or copolymer.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karuna P. Reddy whose telephone number is (571) 272-6566.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax

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phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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